

Trends in Hospital Use

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“THE PROBLEM of medical care is more acute today than ever before, partly because on every side the enormously augmented possibilities of health confront us. Yet everywhere about us are evidences of maladjustments in the availability of medical facilities and their utilization.” This statement and others like it must sound familiar to practically everyone in the hospital and medical care field today. Yet it comes from a volume published in 1933 by the Committee on the Costs of Medical Care (1).

There have, however, been great changes in hospital use in the United States from 1930 to the present. In the early '30's, according to the committee, physicians as a whole were unoccupied between one-third and one-half of their working time, one-third of the hospital beds were empty most of the year and, as a matter of fact, community hospitals reported in 1933 that nearly 40 percent of the beds were unoccupied. “Thousands of nurses seek employment,” the committee reported, “but in vain. Meanwhile, millions suffer and tens of thousands die from ailments which might be cured or alleviated by medical aid.”

By 1946, the 1930 population of 122 million had increased by less than 25 percent, while admissions to general hospitals—7½ million in 1930—had increased to almost 16 million, or more than double the 1930 admission rate.

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By 1966, with a population increase over 1930 of some 60 percent, admissions to hospitals had almost quadrupled. In 1966, there were roughly 27 million admissions to general hospitals and more than 29 million admissions to all hospitals.

Effects of Unmet Needs on Hospital Use

Today we are concerned with the inadequate supply of physicians, rather than with the percentage of time they work, and with the need for more nurses, rather than with the need for finding positions for nurses who are unemployed. Instead of concern over the extent to which a hospital's facilities are being used, there is a great deal of discussion about how these facilities may be used better. Nevertheless, considerable evidence of maladjustment in the availability and use of medical facilities remains. Some thoughtful comments appeared in a paper presented in 1967 at the Hospital Medical Staff Conference at the University of Colorado by Dr. Richard Magraw, director of the Comprehensive Clinic Program, University of Minnesota College of Medical Science (2):

It is, of course, difficult to know just how extensive is the percent of unmet needs, but some hard data are available. Although the concept of need for medical care seems a natural one for us to use as physicians, economists regard the concept without enthusiasm, preferring the concept of demand with its implications of self-determination, individual initiative, and willingness to pay the price for the fulfillment of an expressed “want”. . . . Although they are clearly different in meaning, each term—that is, need and demand—has its own relevance and its limitations.

As we brace ourselves for the crises of service before us for the next five or ten years, we may in time have reason to be grateful that they are not synonymous, in

that at this time and in some segments of our society, needs for medical care are not likely to be quickly translated into the demands of medical services. Grateful, that is, until we realize that what we are feeling good about is someone's sickness and disability.

A good example of the meaning of unmet needs is contained in a report on the Watts area by Dr. Robert Tranquada, chairman of the department of community medicine, University of Southern California School of Medicine, Los Angeles (3). Tranquada indicates that in the Watts area of more than 2½ square miles, there are some 58,000 persons, of whom 90 percent are Negroes. Half the population is 18 years and under; only 4.6 percent is over 65, as compared with 9.6 percent for all Los Angeles County. Nearly two-thirds of the Watts population has resided in that area for 5 years or longer, and nearly half the families have an annual income of \$4,000 or less, with a median income of \$2,500. Watts, Tranquada points out, is economically, socially, racially, culturally, and geographically isolated. Except for the new health center, there are no clinics or hospitals. And of the six small hospitals which are somewhat near the area, only one is accredited. No physicians or dentists live in the area, and before the health center was set up, the physician to patient ratio was 1 to 2,700: it is now 1 to 1,280. The national average is about 1 to 50.

In Alameda County, Calif., the ratio has been one physician to 780 persons. It is not surprising, therefore, that in Watts, as in other areas of poverty, infant mortality rates are about three times the average rates in the country and the tuberculosis rate is four times, the venereal disease rate three times that of the balance of the county. Tranquada (3) states that "Other health statistics are equally depressing."

Watts is only one of many pockets of poverty and illness that will inevitably increase hospital use over the course of time provided that the so-called war on poverty gradually becomes something more than tentative experiments. Much of the unmet need is unmeasured, and even when measured, much of it will not be translated into effective demand until changes occur in the education and attitudes of the subcultures. Health centers such as the one at Watts can do much to reduce hospital bed use through health education and through outpatient thera-

peutic and preventive care. But in instances in which necessary hospital care has been lacking in the past, the backlog of persons needing hospitalization will, at least initially, result in a demand for far more, not less, hospital care.

Hopkins and Harris (4) recently concluded, after testing regression models, that until more and better predictive variables are determined, the needs for the next 5 to 10 years can be more effectively predicted from a simple projection of population growth, holding bed use, population growth, and occupancy rates constant at current levels. Their research included many variables, but the model was limited to (a) deaths at age 65 and over per 1,000 population, (b) births per 1,000 population, and (c) the effective buying income per capita.

Sophisticated quantitative methodologies are receiving more attention as time goes by and, as Hopkins and Harris point out, simple methods of projection that can be fairly accurate for a sizable area may not work too well for an individual institution. Moreover, such projection is essentially the economist's assessment of demand with little or no consideration of people's unexpressed needs. The exact influence of many variables may not be measurable, but recognition of such factors and of their potential for influencing hospital use is essential to any long-range planning. Change is now occurring at such a pace that, even in the short range, we will need to do more than simply plan on the basis of current rates of hospital use.

In our attempts to look forward, however, we must realize that, at present and for the foreseeable future, the initial decision about use of hospitals resides primarily with the individual physician and secondarily with the individual patient. The physician's decision to recommend hospitalization may be based on a determination that his patient's condition and his ability to serve the patient's needs requires it. The physician, however, may also recommend hospitalization when it is not essential if it will serve his own or his patient's convenience. The patient to whom hospitalization is recommended may, on the one hand, accept it because he recognizes the need or the convenience of it or because he will have financial assistance for care only if hospitalized. On the other hand, the patient may

reject hospitalization out of fear, misunderstanding, or financial concern.

Favorable decisions by the physician and the patient are essential to hospital admission and use, but they are not the only determinants. The availability of beds and the hospital's admission policies may impose constraints on use. Also, the elective nature of treatment for a condition may cause a delay in admission as the hospital gives priority to admission of patients with acute cases.

Once a patient is admitted, additional factors determine the use or misuse of facilities. These factors may include the availability or lack of availability of extended care facilities, of home care programs, and of outpatient departments, as well as the level of attention given to the evaluation of hospital use by committees on patient care.

In addition, we are still far from the time when all persons in a community who are ill will, or can, seek medical aid. Thus, as Magraw has pointed out (2), large portions of unmet needs will emerge only slowly. But their emergence under titles 18 and 19 and other legislation is inevitable.

It would be pleasant to produce a magic number or formula to indicate the number of beds and other facilities and programs that would meet our needs, as well as our demands, over the next 10, 20, or 30 years. There is a growing literature—a literature with a long history—on the measurement of needs and on the application of more scientific methods to this measurement. Additional research is being undertaken, and better answers will no doubt become available. Yet there is something to the comment that Anderson of the University of Minnesota made at a conference on research in hospital use called by the Public Health Service in 1961 (5), to the effect that it is utopian to believe that the medical profession can establish and follow objective criteria which will provide a scientific basis for hospital use. Nevertheless, when considering broad trends, we need to consider the major factors which make for increased or decreased use of hospital inpatient facilities and then attempt to strike a balance.

In addition to the effect of a growing population, projected by the U.S. Census Bureau as a minimum of 280 million persons and as many

as 356 million by the year 2015, there appear to be at least a dozen major factors which will affect the rate as well as the magnitude of hospital use (6,7).

Factors Increasing Hospital Use

The factors making for greater hospital use include:

1. A decreasing physician to population ratio
2. Increased third party coverage of hospital care
3. More social concern for care of poor people and low income groups
4. Better morbidity data
5. Technological advances in care for categories of conditions not previously treated or for which treatment has been considered hopeless
6. Greater acceptance by patients of hospital and medical care.

The relative shortage of physicians in relation to medical care needs and the fact that the population is increasing faster than the production of physicians may well result in an increasing use by physicians of hospitalization for the sake of their own and their patients' convenience. Third party insurance coverage has greatly affected hospital use over recent years. Moreover, as the amount and breadth of coverage increases, more financial constraints on use will be removed. With the Government as a third party covering groups formerly not covered, another important constraint on hospital admissions has been removed. Also, social legislation affecting one-fifth of the population living in poverty or at levels of medical indigency, as well as rising social concern, will reinforce the recognition of needs and stimulate the demand for hospital and medical services.

The need for better morbidity data has been emphasized for many years. We still have a long way to go in obtaining data to the extent desirable. However, automated data processing and some of the information assembled for comprehensive health planning will increase this area of knowledge and result in more objective recognition of unmet needs. As the area of scientific knowledge grows and technology provides the means for caring for patients with diseases or conditions not currently well treated or not now susceptible to treatment, new demands for treatment will fall on hospitals. To-

gether with the increasing level of education and the general public's greater awareness about health, all these factors suggest increased hospital use.

Factors Decreasing Hospital Use

The factors making for less use of hospitals include:

1. Comprehensive regional and area health planning
2. Developments in preventive medicine
3. Hospital promotion of out-of-bed programs
4. The pressure of third party payers toward lower use
5. More effective review of hospital use
6. Technological advances to permit more effective out-of-bed care.

Comprehensive, regional, and areawide planning has a long way to go, but it will inevitably greatly affect our pattern of hospital care. Because such planning should be based upon a study of needs as well as of demands, its initial effect may well be to increase hospital use, but in the long run use should decrease.

Preventive medicine, mentioned in 1933 by the Committee on the Costs of Medical Care as an important factor in hospital use, has been so designated ever since. Pediatrics has been a leader in this field. Now, however, more consideration is being given to preventive medicine through mental hygiene and school health programs. The long-run effect of such programs should be fewer delays in obtaining needed care and a reduction in the need for many kinds of care at both the acute and chronic stages.

Promotion by hospitals of out-of-bed programs, as developed in the concepts of progressive care (including outpatient, home, and day care and other programs), would limit in-bed use. Moreover, just as third party payments may increase the demand for hospital beds, the increasing costs of hospital operations and their influence upon third party premiums have led, and will increasingly lead, to pressure for more effective hospital use. Particular power resides in the Government as a very interested third party.

Reviews of hospital use are not new. Recently,

a requirement for more effective work by the committees on hospital use has been proposed as a standard for hospital accreditation. Abuse and overuse of the hospital should be reduced under effective reviews of use, but underuse and too rapid discharges should receive equal attention. Finally, technological advances will in some instances require increased use of hospitals, while in other instances advances may lead to the possibility of more effective out-of-hospital care.

Recent and Future Use of Hospitals

On balance, it appears that the factors making for greater use of hospitals will have more weight in the near future than those making for less use. One result will be an increasing scrutiny of hospital operations by Government and other third parties. In the long run, comprehensive planning and better coordination of inpatient and outpatient care by physicians and hospitals will tend to decrease bed use. This result, however, will take place only in the long run.

The most recent reports of hospital use appear in the American Hospital Association's guide issue of August 1, 1969 (8). The total 7,137 institutions included in the statistical review for 1968 showed an increase of 395,000 admissions over 1967 (8a). The average daily census in 1968 for all hospitals (1,378,398 patients) fell some 2,000 patients below the census of 1967 (8b, 9).

In the 5,820 short-term non-Federal hospitals that account for well over 90 percent of all hospital admissions, the number of admissions in 1968 increased over the previous year by some 288,000, and the average daily census increased by 18,000—from 612,000 patients in 1967 to 630,000 in 1968 (8a).

The number of patient days per 1,000 population under 65 years has changed little in the last few years—785 per 1,000 in 1966 and 782 per 1,000 in 1968. But for the same period, the average patient days per 1,000 population over 65 has increased by more than 17 percent—from 3,386 days in 1966 to 3,990 in 1968 (8c).

A new measure of hospital use was adopted in the guide issue for 1968. Bed days and out-

patient days are included under a single figure of patients per day. This measure is achieved by dividing inpatient revenue per day by outpatient revenue per visit and using the resulting ratio as a correction factor so that the level of hospital effort can be better indicated. Although this method obviously does not provide an exact measurement, it can be useful in some comparisons. More detailed breakdowns, however, will be essential for many study purposes. As shifts occur between the several components of evolving comprehensive health care systems, refined analysis will be essential if we are to predict the use of hospitals and related health care facilities in other than the most general terms.

I have primarily discussed hospital use in the broad context. Bed use in relation to the individual institution is more difficult to estimate, for estimates vary with the individual hospital's staffing, the convenience or inconvenience of its location, the kinds of programs it provides, the support of the local public or the lack of it, the hospital's individual financing, and a variety of other factors. Such relatively simple things as food service may have weight, as well as the availability of special equipment for special types of care. The impact of technological and social change has become so great that there has been a slow but definite increase in hospital mergers, satellite systems, and cooperative sharing of services. James C. Downs, Jr., chairman of the Real Estate Research Corporation of Chicago, has stated that the isolated hospital "going it alone" will go the way of the small independent merchant and be replaced by a chain organization of voluntary hospitals (10).

Whether or not one concurs fully with Downs' statement, undoubtedly either greater voluntary coordination of hospitals will occur or the term "voluntary" as applied to hospitals will become meaningless. In our pluralistic society, which benefits from the challenge provided by varied approaches, it would be unfortunate if the contribution of the voluntary hospital system were lost. Our society, however, is rapidly growing more urbanized and technologically oriented so that the emphasis on individualization tends to decrease. Hospitals, more than ever, are going to be judged by their

ability to meet high standards, one of which is effective use of their facilities in quantitative terms. Hospitals, therefore, must be concerned with meeting this demand; but they must also be prepared to explore and to provide for present unmet needs in a qualitative, as well as quantitative, sense.

In the 1933 report, *The Costs of Medical Care (1)*, a paper by Dr. George E. Vincent entitled "The Doctor and the Changing Order," (which had appeared in the *Bulletin of the New York Academy of Medicine* in 1926) was quoted. Vincent stated: "It looks as if society needs to insist upon a more effective organization of medical service for all groups of people, upon distribution of the cost of sickness over large numbers of families and individuals, and upon making prevention of disease a controlling purpose. Just how these ends will be gained, only a very wise or a very foolish man would venture to predict. One thing seems very certain—in the end, society will have its way."

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- (6) Cook, R. C., editor: Boom babies come of age: the American family at the crossroads. From a report prepared by G. Solomon. *Pop Bull* (Population Reference Bureau) 22: 61-79, August 1966.
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- (8) American Hospital Association: *Hospitals guide*

issue, vol. 43, pt. 2, Aug. 1, 1969: (a) table 1, pp. 474-475; (b) table 2, pp. 476-479; (c) text table 6, p. 487.

- (9) American Hospital Association: Hospitals guide issue, vol. 43, pt. 2, Aug. 1, 1968, table 2, pp. 450-453.
- (10) Downs, J. C., Jr.: Society will save the cities,

says urban expert, and hospitals can share in the recovery. *Mod Hosp* 109: 98-106, November 1967.

Tearsheet Requests

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Education Notes

Surveillance, Prevention, and Control of Hospital-Associated Infections. This course, to be given at the National Communicable Disease Center, Public Health Service, January 26-February 4, 1970, is designed for nurse administrators in clinical and public health practice, nurse surveillance officers concerned with infections control, and nurse educators associated with basic education and inservice training.

The purposes of the course are to acquaint the nurse with the magnitude and complexity of the problem in hospital-associated infections; present principles and methods for surveillance, prevention, and control of infections and stimulate an increase in awareness of the opportunity inherent in nursing to bring about higher quality patient care.

Subject matter includes review of basic principles of epidemiology; definition of the problem of hospital-associated infections; clinical features of infection; the laboratory, animate and inanimate environment, surveillance, and administrative aspects related to infections control; principles of sterilization, disinfection, and isolation; and motivation for action. Time will be allotted for questions and discussion.

No tuition is charged for attendance or for reference materials distributed during the course. Traineeships are not available, and participants should make their own arrangements for funding travel and living costs. Information on housing is included with a letter of confirmation to accepted applicants.

Additional information is available from Claire M. Coppage, Chief, Nurse Development Activities, Training Program, National Communicable Disease Center, Atlanta, Ga. 30333.

The Control of Infections in Health Care Facilities. The University of North Carolina School of Public Health is offering a course in the control of infections in health care facilities, February 16-

20, 1970. The course is being given in cooperation with the Bureau of Disease Prevention and Environmental Control, National Communicable Disease Center, Public Health Service.

The objective of the course is to familiarize participants with the health care administrative structure and to acquaint the participants with environmental control activities usually followed for control of infections. Topics to be covered include organization and management of health care facilities, control and microbiology of the environment in health care facilities, detergents and infections, sterilization, housekeeping, laundry services, the role of the sanitarian in environmental control, food service, solid waste, plumbing systems, ventilation systems, control of ionizing radiation, and evaluation procedures.

Applicants should be professional health personnel in State and local health departments responsible for evaluating control efforts and guiding personnel who are responsible for effecting environmental control in health care facilities. Applications are solicited, also, from administrative and supervisory personnel in health care facilities responsible for environmental control. Enrollment will be limited to 40 persons.

The cost of the course is \$137.50. Some traineeships are available which will cover the cost of registration and provide \$16 per diem expenses. Applicants eligible for traineeships must be citizens of the United States or must have been admitted to the United States for permanent residence.

Applications must be submitted by January 15, 1970.

Additional information is available from Continuing Education and Field Service, School of Public Health, University of North Carolina, Chapel Hill, N.C. 27514.

Announcements for publication should be forwarded to Public Health Reports 6 months in advance of the deadline date for application for admission or financial aid, whichever is earlier.